

Water Treatment by Microfiltration with Katadyn Ceramic Filters



Katadyn Multi Filter MF

The Katadyn Multi Filters MF-7, MF-31 and MF-54 are filter units for 7, 31 or 54 self-cleaning ceramic filter elements of the type Katadyn no. 4, no. 5, no. 6 or LPK-70. The micro-porous filter elements no. 4 (chrome-plated brass) and no. 5 (stainless steel, can be reequipped) have a pore size of $0,2 \mu$ (micron) = $0,0002$ mm. They safely remove from the water suspended solids and agents of water borne diseases such as typhoid, dysentery, cholera, amoebic, giardiasis and cryptosporidiosis. The filter elements Nr. 4 and no. 5 have a flow rate of approx. 3.4 L/min. Finely distributed silver, incorporated in the ceramic structure, keeps the filter element clean and prevents bacteria from growing through the pores of the ceramic. Moreover, the hollow core of the filter body contains silver quartz, which acts against potential infections from the outlet side. There is no discharge of silver into the water. The filter elements no. 6 (chrome-plated brass) and LPK-70 High-Flow (stainless steel, without silver) have a pore size of $1,0 \mu$ (micron) = $0,001$ mm. This results in a higher flow rate of approx. 16,8 L/min and less effective filtration.

Benefits of Katadyn Ceramic Filters:

- Safe and reliable treatment as well as clear filtration of water; therefore double function in the same system and process.
- Ecological and simple process, without the use of chemicals. The natural taste and mineral content of the water are retained.
- Filter elements are easily regenerated by simply brushing their surface. This results in a longer life span and therefore a cost-effective operation.



Benefits of Katadyn Multi Filter MF:

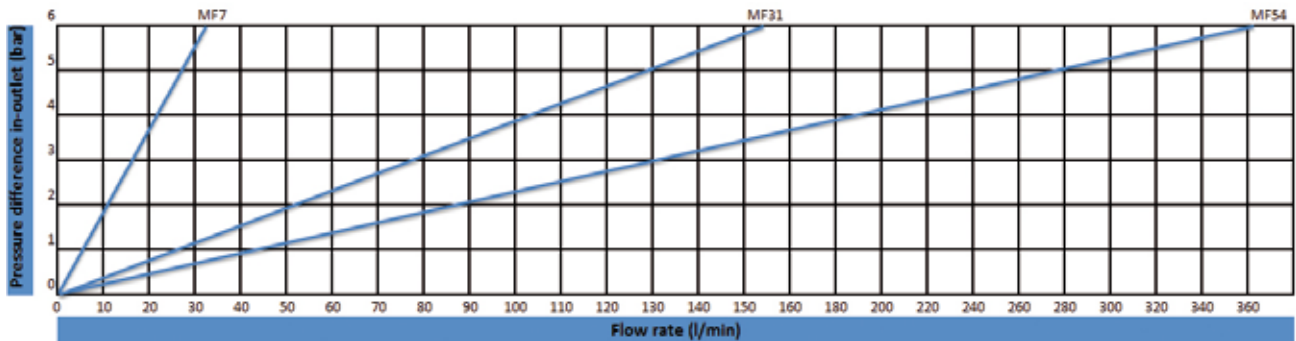
- High reliability (tested)
- Simple and robust construction
- High performance: 24/106/185 L of cleaned water per minute
- Low maintenance costs (renewable filter elements)
- Made entirely of stainless steel (AISI 304/Nin 1.4301)
- Years of proven functionality
- Proven technology also used in other Katadyn products
- Very simple to clean



Applications:

- Beverage and food industry (table water, rinsing water, process water)
- Milk processing (process water for dairies, cheese-making, cattle breeding, cattle fattening)
- Mountain restaurants, alpine huts (drinking water)
- Navigation, platforms (drinking water, rinsing water)
- Civil defence, army (drinking water, emergency water supplies)

Flow Rates and Tests (with Filter Elements No. 4 and 5)



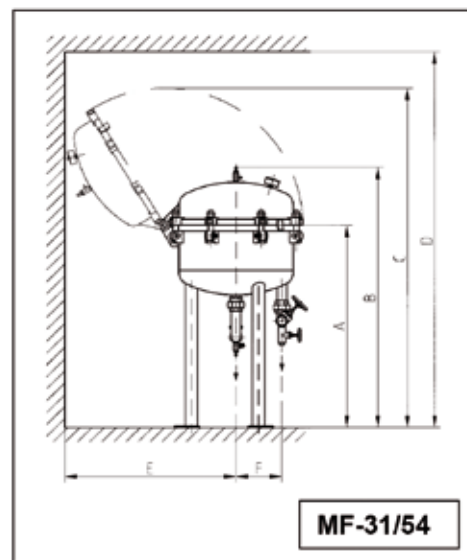
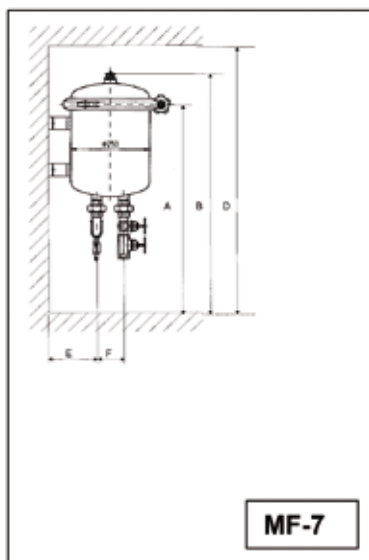
Microbiological Tests (Selection, with Filter Element No. 5)

Year	Testing Institute	Germ Types	Concentration CFU	Duration	Reduction Log
1970	University of Zurich	Escherichia coli	50.000/ml	Single test	> 4.7
1976	Pasteur Institute, Lille	Fecal coliforms	240 millions/100 ml	Single test	> 8.4
		Fecal streptococci	1.100.000/100 ml	Single test	> 6.0
1981	University of Michigan	Klebsiella aerogenes	1.000.000/ml	26 days	> 6.0
		Vibro cholerae	1.000/ml	26 days	> 4.0
1986	Bureau of Standards Pretoria	Pseudom. aerug. & others	~15.3 millions/ml	10 days	germ-free
1990	Dept of Industry Wisconsin	Giardia lamblia	100.000 cysts/ml	Single test	germ-free
		Yersinia enterocolitica	100.000/ml	Single test	germ-free
1991	Minist. de Salud Buenos Aires	Pseudomonas aeruginosa	26.000/ml	Single test	germ-free
		Vibrio cholerae	23.000/ml	Single test	germ-free
1991	Clinical Laboratory, Lima	Enterobacter aerogenes	12.500/ml	Single test	> 4.1
1994	Swiss Tropical Institute, Basel	Giardia lamblia	3.000.000 cysts/ml	Single test	> 6.5
		Entamoeba histolytica	40.000 cysts/ml	Single test	> 4.6
1995	University of Arizona	Klebsiella terrigena	6.900.000/l	Test series	> 6.0
		Cryptosporidium	1.200.000/l	Test series	> 3.0
1996	Defence Ministry Saint Cloud	Fecal streptococci	10.000/ml	3 days	germ-free
		Fecal coliform germs	20.000/100 ml	3 days	germ-free
1997	Water & Sewage Corp. Uganda	Total coliform germs	> 200/100 ml	Single test	germ-free
1999	Spectrum Labs, Minnesota	Klebsiella terrigena	6.700.000 ml	10.5 days	> 6.0

Technical Data Katadyn Ceramic Filters (with Filter Elements No. 4 and 5)

Filter type		MF-7	MF-31	MF-54
Flow rate (L/min.) [*]		24	106	185
Filtration effect μ (micron)		0.2	0.2	0.2
Design pressure (bar)		6		
Dimensions	Height (mm)	604	1159	1150
	Diameter (mm)	378	613	750
Connections water inlet, outlet		3/4"	G 1 1/4"	G 2"
Weight of filter, dry (kg)		29	92	180
Weight of filter, filled with water (kg)		36	137	240
Filter housing	Material	1.4301		
Valves	Material	Stainless steel		
Installation of filter		Wall mounting	floor/support legs	floor/support legs
Water temperature at continuous operation		5 - 60° C		
Maintenance of ceramic filter elements		Cleaning of filter surface with brush		
Filter housings equipped with		Non-return valve on water outlet Optional: Inlet and outlet connections made from stainless steel (includes inlet tap for untreated water, flush valve, outlet tap with sampling valve for treated water) Cleaning brush		

[*] Sizing for particle-free water, new or recently cleaned filter elements, at pressure differential of 4 bar, e. g. inlet pressure 5 bar, pressure after filter 1 bar (see also flow diagram).



Type	Connection	Ø	A	B	C	D	E	F
MF-7	G 3/4 "	380	900	1005	-	1700	145	86
MF-31	G 1/4 "	760	910	1159	1506	1800	750	200
MF-54	G 2 "	970	905	1150	1660	1800	800	267

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